

Assessing PCTE, CORBA and the WWW

**Final Report to NRaD San Diego and
The Office of Naval Research**

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1.0 Introduction

The purpose of ASU's work in this project was to examine the relative positioning of the three technologies, PCTE/PCIS, OMG CORBA and the Internet/ Java/WWW. Additionally, we sought to identify future directions in the context of a PCIS-II joint international project. One aspect of this work was to provide an assessment of current commercial PCTE implementations and to uncover the relationships among PCTE/PCIS, OMG CORBA and the Internet/Java. This activity further extended the life-cycle process work done on the PCIS project by considering automated support for distributed software engineering processes. We have begun to outline future directions for development and use of these technologies (CORBA, Java, PCTE and automated support for distributed software processes).

ASU has generated four papers, which embody the recommendations and assessments of this technology. In each case, the papers are backed by exploratory hands-on work with the underlying technologies. This has included usage of CORBA implementations, exploring aspects of the Java and JavaBeans API's and developing a Java Internet based process interoperability demonstrator tool suite. Each of the reports is covered in the following section.

2.0 Project Technical Activities and Reports

ASU has participated with NRaD in the development and definition of the PCIS-II project. ASU has done background exploration on the issues surrounding the project definition. This has included participating in the initial PCIS-II project meeting held in San Diego in June 1996 and working with NRaD personnel on other related issues.

2.1 PCTE and Its Implementations: Portos and Transtar

The paper (see [6.]) considers the two remaining implementations of PCTE (The Portable Common Tool Environment). These implementations have, in the past, enjoyed considerable use. The concepts of PCTE have been transitioned into several current infrastructure components.

2.2 Open Workflow Components

When software is constructed by a widely distributed group (set of groups), process, coordination and cooperation become central issues. Workflow components support definition, enactment and analysis of the activities, interactions and products of group members. Open Workflow Components (see [5.]) addresses issues involved when a single software process must include subprocesses that are defined or enacted using another process tool.

2.3 Software Components with CORBA, Java and the Internet

Software components present a new paradigm for composing, reusing and configuring desktop functionality. But, what can be done to take advantage of these approaches short of rewriting legacy tools? This paper (see [4.]) considers different approaches for distributing existing tools, and for wrapping the functionality of existing tools for use by other components.

2.4 Review of WfMC WAPI Specifications

The Workflow Management Consortium was created to provide a forum for workflow vendors to develop interoperability into their products as they evolve. To accomplish this interoperability WfMC has developed a set of application program interfaces (WAPI) and a reference model for workflow systems. This paper (see [3.]) describes and analyzes the WAPI proposed by WfMC.

3.0 Fiscal Report

3.1 Personnel

The project has supported 1 graduate research assistant, Ph.D. student Kevin Gary, 1 post-doctoral researcher, Dr. Harry Koehnemann, and 1 faculty principal investigator, Dr. Tim Lindquist. Kevin Gary has been supported by the project at 100% during the period 15 May 96 to 15 August 96, and at 50% during the period 16 August 96 to 15 May 97. Harry Koehnemann has been supported at 50% during the period 15 May 96 to 1 March 1997. With a contract extension, he is scheduled to be continued retroactively at the same level. Dr. Lindquist has been supported by the project at 25% for the period 15 August 96 to 15 May 97.

3.2 Travel and Other Expenditures

The project has supported participation of all researchers in a Joint French and USA project formulation meeting hosted by NRD in San Diego in June 96. The project held a technical interchange meeting hosted by ASU in November 96. Support for travel to the March 97 project meeting by all three researchers is split between the existing contract and the continuation.

The project has also supported several software purchases the most significant of which is ORBIX WEB 2.0, an implementation of CORBA marketed by Iona of Dublin Ireland.

4.0 References

- [1.] PCIS Architecture: Framework Definition and Rationale, Version 1.0; NATO Tri-Service Group on Communications and Electronics, Special Working Group on Ada Programming Support Environments, 31 December, 1993.
- [2.] PCTE, Portable Common Tool Environment (ISO and ECMA Standard), European Computer Manufacturers Association, 114 Rue du Rhone, CH-1204, Geneva, Switzerland. Tel: +41 22 735 36 34, Fax: +41 22 786 52 31.
- [3.] Gary, Kevin; et.al, Review of WfMC WAPI Specifications, ASU CSE Department Technical Report, (available via WWW at <http://www.eas.asu.edu/~yfppg>) November 1996.
- [4.] Koehnemann, Harry; et.al, Software Components with CORBA, Java and the Internet, ASU CSE Department Technical Report, (available via WWW at <http://www.eas.asu.edu/~yfppg>) November 1996.
- [5.] Gary, Kevin; et.al, Open Workflow Components, ASU CSE Department Technical Report, (available via WWW at <http://www.eas.asu.edu/~yfppg>) November 1996.
- [6.] Lindquist, Timothy; et. al, PCTE and Its Implementations: Portos and Transtar, ASU CSE Department Technical Report, November 1996.

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